# GPS Measurement of Deformation near Northridge, California, Prior to and Following the M 6.7 1994 Northridge Earthquake

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Results from Global Positioning System (GPS) measurements indicate that the Ventura basin, near Northridge California, was shortening at a rate of 7+ -2 mm/yr between 1987 and 1992 across a zone about 15 km wide. The region south of the basin showed negligible deformation. The pattern of deformation in the east-central basin is consistent with slip occurring deep on the thrust faults that bound the basin that are locked from the surface to about 10 km depth. We estimated an earthquake potential of M 6.4 for the cast-central portion of the basin, The strain rates are higher in the east-central basin than in the eastern basin (north of Northridge) implying that the faults bounding the eastern basin were locked to greater depths. This observation is consistent with the 18 km depth of the Northridge ma i nshock.

We have continued to monitor the region since the 1994, M 6.7 Northridge earthquake. Nearly all of the post-seismic motion that we have measured can be at tributed to large, M >5, aft ershocks. 1 lowever, the region has shortened by about 1.5 cm in the 6 months following the earthquake.

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